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Docket No.: 08935-2200 Client's Ref. No.: M-4931

CLAIMS

1	M	1. A primary alkaline battery, comprising:
2	1	a cathode comprising a cathode active material and carbon fibers;
3/1	18/1	an anode;
4	^	a separator; and
5		an alkaline electrolyte.
1		2. The battery of claim wherein the cathode comprises less than about 5% of
2	carbon	fibers by weight.
1		3. The battery of claim 1, wherein the cathode comprises less than about 4% of
2	carbon	fibers by weight.
1		4. The battery of claim 1, wherein the cathode comprises less than about 3% of
2	carbon	fibers by weight.
1		5. The battery of claim \(\frac{1}{2} \), wherein the cathode comprises less than about 2% of
2	carbon	fibers by weight.
1		6. The battery of claim 1, wherein the cathode comprises between about 1% and
2	about 5	% of carbon fibers by weight.
1		7. The battery of claim 1, wherein the cathode comprises between about 2% and
2	about 3	% of carbon fibers by weight.
1		8. The battery of claim 1, wherein the cathode active material comprises
2	mangar	nese dioxide.
1		9. The battery of claim 1, wherein the cathode comprises greater than about 86%

of cathode active material by weight.

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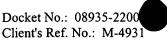
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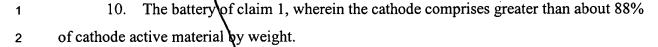
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- The battery of claim 1, wherein the cathode comprises greater than about 90% of cathode active material by weight.
- 12. The battery of claim 1, wherein the cathode comprises greater than about 92% of cathode active material by weight.
- The battery of claim 1, wherein the carbon fibers have a diameter less than 1 about 250 nanometers. 2
 - The battery of claim 1, wherein the carbon fibers have a diameter between about 60 nanometers and about 100 nanometers.
 - The battery of claim 1, wherein the carbon fibers have a diameter less than 15. about 60 nanometers.
 - The battery of claim 1, wherein the carbon fibers have been heat treated. 16.
 - The battery of claim 16, wherein the carbon fibers have been heat treated at a 17. temperature greater than about 2000 °C.
 - The battery claim 16, wherein the carbon fibers have been heated treated at a temperature between about 2600 °C and about 3100 °C.
 - The battery of claim 1, wherein the carbon fibers have a length less than about 2 x 10⁵ nanometers.
 - The battery of claim 1, wherein the carbon fibers have a length between about 20. 500 nanometers and about 200,000 nanometers.



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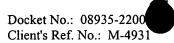
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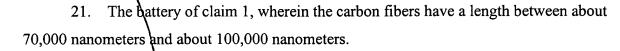
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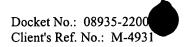
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- The battery of claim 1, wherein the carbon fibers comprise between about 1 and about 500 layers of graphite.
- The battery of claim 22, wherein the carbon fibers comprise between about 40 and about 100 layers of graphite.
- The battery of claim 1, wherein the carbon fibers have an external surface area between about 10m²/g and about 50 m²/g.
 - The battery of claim 1, wherein the carbon fibers have a surface energy between about 50 mJ/m and about 300 mJ/m².
 - The battery of claim 1, wherein the carbon fibers have a graphitic index of less 26. than about 85%.
 - The battery of claim 1, wherein the carbon fibers have a length equal to or greater than an average particle size of the cathode active material.
 - The battery of claim 1, wherein the cathode further comprises a surfactant. 28.
- 29. The battery of claim 28, wherein the surfactant is selected from a group consisting of polyvinyl alcohol, ethylene-vinyl alcohol, and polyvinylbutyrol.
- 30. The battery of claim h, wherein the anode comprises zinc as an anode active 1 material. 2
 - A primary alkaline battery comprising:
- a cathode comprising manganese dioxide and a heat-treated carbon material having a 2 3 diameter less than about 250 nanometers;
- an anode;



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a separator; and an alkaline electrolyte.

32. The battery of claim 31, wherein the cathode comprises between about 1% and about 5% of carbon fibers by weight.

33. The battery of claim 31, wherein the cathode comprises between about 2% and about 3% of carbon fibers by weight.

34. The battery of claim 31, wherein the cathode has an electrical conductivity at least 3 times greater than a cathode having about 6% of graphite.

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